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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/641,350 | 08/14/2003 | Christopher Kempson Shaw | 194-26936-US | 9812 |

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EXAMINER

BOMAR, THOMAS S

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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3672

DATE MAILED: 08/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/641,350

Applicant(s)

SHAW ET AL.

Examiner

Shane Bomar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2003.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-42 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 14 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/30/04.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claims 3, 6, 30, and 39 are objected to because of the following informalities: the recitation of “the parameter of interest” in claim 3 lacks proper antecedent basis in claim 1; in claim 6, the second recitation of “chemical” should be made plural; in claim 30, the recitation of (“production fluid”) appears to be unnecessary, especially since parentheses are usually reserved for reference numerals from drawings in claims; in claim 39, the recitation of “one of interest in” after “interest is” appears to be redundant and awkward. Appropriate correction is required.

Specification

2. The disclosure is objected to because of the following informalities: on page 19, the recitation of “the fluid carry lines 127” in line 14 appears to be awkward, and the recitation of “remote controller 152s” in line 20 should most likely be --remote controller 152r--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-9, 12-14, 16-32, 34-42 are rejected under 35 U.S.C. 102(e) as being anticipated by US patent 6,772,840 to Headworth.

Headworth discloses a system and associated flow assurance method for injecting one or more additives into production fluid produced by at least one subsea well, the system comprising: a) an inherent surface chemical supply unit for supplying at least one chemical to a selected subsea location (inherent because the chemicals must come from the surface before being introduced subsea); b) at least one chemical supply line 80, 70 for carrying the at least one chemical from the surface to the selected subsea location; and c) a subsea chemical injection unit 70 at the selected subsea location receiving the at least one chemical from the surface chemical supply unit and selectively injecting the at least one chemical into the production fluid (see Figs. 2, 3, 5, 7, 11-13, and 16, and col. 6, line 42 through col. 8, line 62). The system further comprising: a controller, or control valve, responding to a parameter of interest from a sensor, or a plurality of distributed sensors (see col. 16, line 56 through col. 17, line 3, and col. 28, lines 14-20); an inherent storage unit for the chemicals since the line 70 is said to hold the chemicals in one embodiment (see col. 28, lines 22-24), and wherein the storage unit is adapted to be refilled remotely; a plurality of lines 701 and 71 supply a plurality of chemicals (see col. 12, lines 30-32); the chemical supply unit can be on a rig (see Fig. 3), or on a buoy (see Fig. 2 where 42 acts like a buoy, or Fig. 14); it is seen to be inherent that some form of mixer would be needed to mix more than one chemical together before being injected; conductors 104 supply power, and can be seen as a subsea power unit for the injector, especially since the valves 194 of the tubing must be powered (see col. 16, lines 48-49); a riser transports the production fluid and the chemical supply line is in the riser (see Figs. 2, 3, 5, 7, 11-13, and 16), or it could be outside, as is old in the art (see col. 27, lines 27-31); the sensor is located at least one of the claimed locations (see col. 16, line 56 through col. 17, line 21); there are a plurality of wells 52 and the injection unit separately

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supplies the wells (see Figs. 3, 11, and 16); a subsea processing unit 69 receives production fluid via line 56 (see Fig. 2); the injection unit injects chemicals into at least one of the currently claimed elements (see Figs. 2-16); line 70 also acts as a heating device to heat the production fluid with an inherent source of power (see col. 11, lines 11-14); a surface controller remotely controls the valves 194 (see col. 28, lines 14-20); and the processing unit at least partially refines the production fluid as is well known in the art, and transports it to the surface via a fluid line (see col. 10, lines 28-63). The method also inherently measures a parameter of interest because it is well known in the art that fiber optic line sensors take these types of measurements.

5. Claims 36-42 are rejected under 35 U.S.C. 102(e) as being anticipated by US patent 6,663,361 to Kohl et al.

Kohl et al disclose a system for injecting a chemical into formation fluid produced by at least one subsea well, comprising: (i) a chemical supply system for supplying a desired chemical (see col. 5, lines 31-37); and (ii) an underwater chemical injection unit injecting chemical into the formation fluid produced by the at least one subsea well (see the Figure and associated description). The system further includes at least one sensor providing a measurement of a parameter of interest (see col. 4, line 64 through col. 5, line 6); a controller for controlling the injection in response to the parameter (see col. 4, lines 40-59); the parameter relating to a device associated with the subsea well (see col. 4, line 64 through col. 5, line 6, wherein the injection pump is a device associated with the subsea well); the chemical is injected at the seabed (see col. 5, lines 31-33); and an underwater storage tank *adapted* to be remotely refilled or disconnected (see col. 5, lines 31-37), and an inherent chemical supply unit at the surface because the chemicals must come from the surface at some point in the process.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 10, 11, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Headworth in view of US patent 6,640,900 to Smith.

Headworth teaches the system and method of claims 9 and 32 that includes a buoy at the sea surface. However, it is not expressly taught that the buoy includes a chemical storage tank that is periodically filled by the chemical supply unit.

Smith teaches a chemical injection system similar to that of Headworth. It is further taught that a buoy stores chemicals that are supplied remotely from a supply unit (see Fig. 1 and col. 8, line 66 through col. 9, line 5). It would have been obvious to one of ordinary skill in the art, having the teachings of Headworth and Smith before him at the time the invention was made, to modify the system and method taught by Headworth to include the remotely filled buoys of Smith, in order to obtain a system that does not require a floating vessel or platform to be located directly over the wellbores being serviced. One would have been motivated to make such a combination because Smith has shown it to be notoriously known in the art to use buoys for this specific purpose and because this combination would save time and money when multiple subsea wells are producing from a reservoir covering a large surface area.

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Headworth in view of US patent 6,281,489 to Tubel et al.

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Headworth teaches the system of claim 14 that comprises a subsea power unit. However, it is not expressly taught that the power unit includes an electrical battery that is periodically charged from the surface.

Tubel et al teach a system for injecting chemicals to treat a production fluid and the use of batteries in the subsurface wellbore environment as a power source. It is further taught that the batteries are periodically charged from the surface (see col. 19, lines 11-19). It would have been obvious to one of ordinary skill in the art, having the teachings of Headworth and Tubel et al before him at the time the invention was made, to modify the system taught by Headworth to include the subsurface rechargeable battery power supply of Tubel et al, in order to obtain an alternate power source that is easily replenishable. One would have been motivated to make such a combination for the aforementioned reason, and because Tubel et al have shown it to be notoriously known in the art to use rechargeable batteries in the well art as power supplies.

9. Claims 1-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,196,314 to Chen in view of Headworth or Kohl et al.

Regarding claims 1, 30, and 36, Chen teaches a system and associated flow assurance method for injecting one or more additives into production fluid produced by at least one subsea well, the system comprising: a) an inherent surface chemical supply unit for supplying at least one chemical to a selected subsea location (inherent because the chemicals must come from the surface before being introduced subsea); and b) at least one chemical supply line for carrying the at least one chemical from the surface to a chemical injection unit 136 and selectively injecting the at least one chemical into the production fluid (see Figs. 1 and 2, and 16, and the associated

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descriptions). However, it is not expressly taught that the chemical injection unit is located at a subsea location.

Either Headworth or Kohl et al teach a system and associated flow assurance method for injecting one or more additives into production fluid produced by at least one subsea well similar to that of Chen. It is further taught that the chemical injection unit is located at a subsea location (see, for example, Figs. 2 and 3 of Headworth and col. 5, lines 31-33 of Kohl et al). It would have been obvious to one of ordinary skill in the art, having the teachings of Chen and Headworth or Kohl et al before him at the time the invention was made, to modify the system and method taught by Chen to include the subsea chemical injection unit of either Headworth or Kohl et al. One would have been motivated to make such a combination since Headworth and Kohl et al have shown it to be notoriously known in the art to place chemical injection units on the sea floor, and because the references are directed to the narrow problem of injecting chemicals into subsea wells, a person seeking to solve the exact problem would consult the references and apply their teachings together.

Regarding the remaining claims depending from claims 1, 30, and 36, these limitations can either be found in columns 2-5 of Chen, or can analogously be rejected in view of Headworth or Kohl et al as seen in the 102 rejections above, or further in view of Smith or Tubel et al as also seen above.

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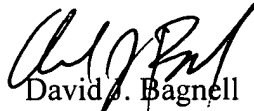
Conclusion


10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Amin et al, Appleford et al, Caldwell et al, Davidson et al, Dean et al, Deans et al, Firmin, Hopper, Matthews et al, and Skeels et al teach other chemical injection systems of specific interest.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shane Bomar whose telephone number is 571-272-7026. The examiner can normally be reached on Monday - Thursday from 7:00am to 4:30pm. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell can be reached on 571-272-6999. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


David J. Bagnell
Supervisory Patent Examiner
Art Unit 3672

tsb 
August 4, 2005